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10/535,601	03/31/2006	Martin Griebel	OEH-202/500814.20104	7614

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EXAMINER	
CLARK, MAYA ANGELICA	

ART UNIT	PAPER NUMBER
3742	

MAIL DATE	DELIVERY MODE
08/18/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/535,601	GRIEBEL ET AL.	
	Examiner	Art Unit	
	MAYA CLARK	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/19/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the term "He" in the phrase "He method comprises" in the Object and Summary of the Invention section on page 6 in paragraph 0023 is not grammatically correct. The term "He" should be "The" instead.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lutze et al (US 5882572), hereinafter Lutze in view of Yasuda et al (US 6337461 B1), hereinafter Yasuda, and in further view of Okumura et al (US 6433304 B2), hereinafter Okumura.

Lutze claims a method for generating a predetermined breaking line i.e. weakening line in a one-layer planar extending article having a working side i.e. carrier layer side (Lutze-col.6, lines 15-18) and a decorative side i.e. surface layer side (Lutze-col.5, lines 54-55), comprising a material with an inhomogeneous material density distribution (Lutze-col.2, lines 61-64; col.3, lines 27-34; col.5, lines 42-44 and lines 54-57).

Secondly, Lutze claims a method of using a laser beam to generate holes (Lutze-col.3, lines 35-42), but Lutze fails to explicity claim a method involving

directing a laser beam bundle to the working side for removing material in its beam path and thereby generating holes that are invisible from the decorative side.

Yasuda claims a laser machining apparatus capable of directing a laser beam bundle (11) to the working side (4) for removing material in its beam path and thereby generating holes (7) i.e. microperforations that are invisible from the decorative side (6) (Yasuda-col.4,lines 1-2);

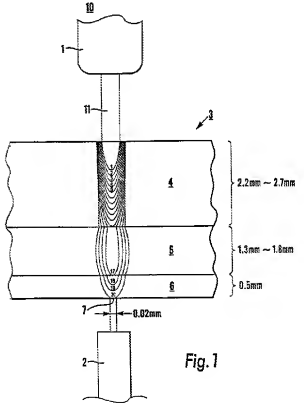

Fig. 1

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Yasuda's method for directing a laser beam bundle and generating holes that are invisible from the decorative side into Lutze's device in order to generate holes that are invisible from the decorative side.

In addition, Lutze does claim a method in which the laser beam bundle and the planar extending article carrying out a relative movement with respect to one another so that the holes are generated in a row along the desired predetermined breaking i.e. weakening line (Lutze-col.3,lines 27-46);

Furthermore, Lutze does claim a method in which the laser beam is switched off when the detector senses a signal that is equal to a comparator value (Lutze-col.6, lines 33-54), but Lutze fails to explicitly claim a method involving switching off the laser beam for a period of time determining the subsequent hole spacing when an amount of radiation generating a detector signal that is greater than a predetermined threshold signal impinges on a detector arranged on the decorative side;

Okumura claims a hole perforating machining method using a laser beam in which the through-hole machining laser beam is switched off after the detecting signal derived from the sensor exceeds a preset threshold valve as a result of the sensor's detection of the laser beam as a result the subsequent hole spacing can be determined. Furthermore, the laser beam can also be controlled when the sensor detects a much smaller signal when compared to the preset threshold valve (Okumura-abstract-lines 1-11; col.4, lines 62-67; col. 5, lines 1-5 and lines 19-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Okumura threshold sensor device in to the modified Lutze's device in order to have the laser beam (11) shut off for a period of time as a result of when an amount of radiation generating a detector (2) signal that is greater than a predetermined threshold signal impinges upon a detector arranged on the decorative side (6) (refer to Yasuda's fig.1 of this claim i.e. claim 11).

The modified Lutze device fails to explicitly claim a method involving gradually increasing the output of the laser beam from zero to its maximum nominal value before starting to produce each hole.

It would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to modify the modified Lutze device to increase the output of the laser beam from zero to its maximum nominal value before starting to produce each hole since the applicant has not disclosed that having to increase the output of the laser beam from zero to its maximum nominal value solves any stated problem or is for any particular purpose, and it appears that the modified Lutze device would perform equally well with the increase of the laser beam output from zero to its maximum nominal valve or any other output valve.

Lastly, the modified Lutze device claims a method involving switching off the laser beam immediately when a detector signal that is greater than the predetermined threshold is generated before reaching the maximum nominal value, which is caused by the absence of material or by a small amount of material of the planar extending article in the beam path (pseudo-hole) and prevents removal of the small amount of material

and prevents overloading of the detector as one of ordinary in the skill of the art at the time the invention was made would recognize (Okumura-abstract-lines 1-11 and col.4, lines 62-67 and col. 5, lines 1-5 and lines 19-20).

4. Claims 12-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al (US 6337461 B1), hereinafter Yasuda in view of Lutze et al (US 5882572), hereinafter Lutze and in further view of Okumura et al (US 6433304 B2).

Regarding claim 12, Yasuda claims a laser machining device capable of generating a predetermined breaking line in a multiple- layer (4,5,6) planar extending article (3) with a working side (4) and a decorative side (6), in which the layer (6) (final layer) forming the decorative side, said method comprising an inhomogeneous material (Yasuda-abstract-lines 1-8 and refer to fig.1 below for all numeral references),

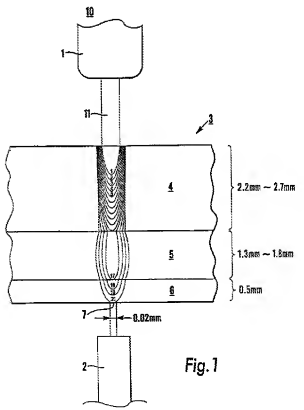

Fig.1

comprising the steps of:

directing a laser beam bundle (11) to the working side (4) for removing material in its beam path and thereby generating holes (7) i.e. microperforations that are invisible from the decorative side (6) (Yasuda-col.4,lines 1-2);

Secondly, Yasuda fails to claim a method in which the laser beam bundle and the planar extending article carry out a relative movement with respect to one another so that the holes are generated in a row along the desired predetermined breaking line

Lutze claims a method for producing a predetermined breaking i.e. weakening line in which the laser beam bundle and the planar extending article carry out a relative movement with respect to one another so that the holes are generated in a row along the desired predetermined breaking i.e. weakening line (Lutze- col.3, lines 27-46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Lutze's method to have the laser beam bundle and planar extending article moving with respect to one another into Yasuda's device in order to accurately generate holes in a row along the predetermined breaking line.

In addition, Yasuda claims a method in which the laser beam is switched off when the laser beam (11) impinges the sensor (2) arranged on the decorative side (6) (Yasuda-col.2, lines 39-42 and refer to fig.1 of this claim i.e. claim 12).

Yasuda fails to claim an exact method of switching off the laser beam for a period of time determining the subsequent hole spacing when an amount of radiation

generating a detector signal that is greater than a predetermined threshold signal impinges upon a detector arranged on the decorative side;

Okumura claims a hole perforating machining method using a laser beam in which the through-hole machining laser beam is switched off after the detecting signal derived from the sensor exceeds a preset threshold valve as a result of the sensor's detection of the laser beam as a result the subsequent hole spacing can be determined. Furthermore, the laser beam can also be controlled when the sensor detects a much smaller signal when compared to the preset threshold valve (Okumura-abstract-lines 1-11; col.4, lines 62-67; col. 5, lines 1-5 and lines 19-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Okumura threshold sensor device into Yasuda's device in order to have the laser beam (11) shut off for a period of time as a result of when an amount of radiation generating a detector (2) signal that is greater than a predetermined threshold signal impinges upon a detector arranged on the decorative side (6) (refer to fig.1 from this claim i.e. claim 12 for all reference numerals)

Furthermore, the modified Yasuda device fails to explicitly claim a method consisting of reducing the output of the laser beam prior to penetration of the laser beam into the final layer at least until the amount of radiation still being emitted generates a signal smaller than the threshold with full detection;

The modified Yasuda device does, however, claim the use of a laser controller (30) for varying i.e. reducing or increasing the output of the laser beam generating

means (10) (Yasuda-col.5, lines 1-8 and refer to the Yasuda's fig.8 below for all reference numerals).

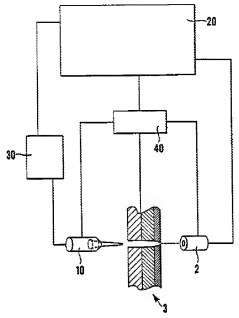

Fig.8

As a result, it would have been obvious to one of ordinary skill in the art to recognize that the modified Yasuda device is capable of providing a method consisting of reducing the output of the laser beam prior to penetration of the laser beam into the final layer at least until the amount of radiation still being emitted generates a signal smaller than the threshold with full detection;

Also, the modified Yasuda device claims a system controller (20-refer to fig.8 above) for activating the detector i.e. sensor (2- refer to fig.1 of this claim i.e. claim 12) and a laser controller (30-refer to fig. 8 above) subsequently for increasing the laser beam again gradually to its maximum nominal value.

Lastly, the modified Yasuada device claims a method involving switching off the

laser beam immediately when a detector signal that is greater than the predetermined threshold is generated before reaching the maximum nominal value, which is caused by the absence of material or by a small amount of material of the planar extending article in the beam path (pseudo-hole) and prevents removal of the small amount of material and prevents overloading of the detector as one of ordinary in the skill of the art at the time the invention was made would recognize (Okumura-abstract-lines 1-11; col.4, lines 62-67; col. 5, lines 1-5 and lines 19-20).

Regarding claim 13, the modified Yasuda device claims a system controller (20-refer to fig.8 from claim 12) as one of ordinary in the skill of the art at the time the invention was made would know is capable of desensitizing a detector or deactivating it in order to protect it from possible overload.

In additional, the modified Yasuda device fails to explicitly claim that a preparatory cut be introduced along the desired predetermined breaking line from the working side to at most the final layer before generating the row of holes.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that a preparatory cut is simply the initial starting or initial reference cutting point that is generated before an entire hole can be generated, and as a result such a cut i.e. initial cut can be introduced along the desired predetermined breaking line from the working side (4) to at most the final layer i.e. decorative i.e. foil layer (6) before generating the row of holes (7) (refer to fig.8 from claim 12 for all numeral references and Yasuda-col.2, lines 47-57).

Regarding claims 14 and 15, the modified Yasuda device fails to explicitly claim a method wherein the threshold signal is selected in such a way that it is generated already by an amount of radiation that transmits through a residual wall of material of the planar extending article so that the holes are formed as blind holes.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that the modified Yasuda device with the aid of its system controller (20), laser controller (30), and threshold signal selection and detection sensor system is capable of selecting and detecting various threshold signals including a threshold signal in such a way that it is generated already by an amount of radiation that transmits through a residual wall of material of the planar extending article so that the holes are formed as blind holes (refer to fig.8 from claim 12 for all numeral references and Okumura-abstract-lines 1-11; col.4, lines 62-67; col. 5, lines 1-5 and lines 19-20 and Yasuda-col.2,lines 58-65).

Regarding claims 16 and 17, the modified Yasuda device fails to explicitly claim a method wherein when working an inhomogeneous material that is a textile i.e. cloth i.e. cover surface having an open structure on the decorative side, the threshold signal is selected in such a way that an amount of radiation that generates a signal greater than the threshold signal is not detected until after the direct penetration of the decorative side so that the holes are formed as microperforations.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that the modified Yasuda device is capable of selecting and detecting various threshold signals including selecting a threshold signal

in such a way that an amount of radiation that generates a signal greater than the threshold signal is not detected until after the direct penetration of the decorative side (6-refer to fig.1 from claim 12) so that the holes (7-refer to fig.1 from claim 12) are formed as microperforations (Okumura-abstract-lines 1-11; col.4, lines 62-67;col. 5, lines 1-5 and lines 19-20 and Yasuda-col.2, lines 66-67 and col.3,lines 61-67).

Regarding claims 18-21, the modified Yasuda device fails to explicitly claim a method, wherein the laser beam impinges on the working side at an angle of less than 90° relative to the direction of the predetermined breaking line in order to increase the length of the beam path in the planar extending article, which leads to removal of a greater amount of material with hole spacing remaining constant or allows greater hole spacing.

The modified Yasuda device does claim a system controller (20-refer to fig.8 from claim 12) and a positioning means (40-refer to fig.8 from claim 12) for controlling the degree in which the laser beam will impinge i.e impinging at less than 90 degrees the working side as a result the amount of material that needs to be removed for hole formation and the amount of hole spacing can be controlled (Yasuda-col.3, lines 61-67; col.4, lines 1-8;col.5,lines 1-8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that the modified Yasuda device is capable of having the laser beam impinge on the working side (4-refer to fig.8 from claim 12) at an angle of less than 90° relative to the direction of the predetermined breaking line in order to increase the length of the beam path in the planar extending article, which

leads to removal of a greater amount of material with hole spacing remaining constant or allows greater hole spacing.

Regarding claims 22 and 23, the modified Yasuda device fails to explicitly claim a method wherein the selected hole spacing between a pseudo-hole and a subsequent blind hole or microperforation is less than the other hole spacings.

The modified Yasuda device is capable of having its laser beam move in such a way as to form a variety of different types of hole spacing (Yasuda-col.2, line 65, col.3, lines 61-62, col.4, lines 3-8, and col.4, lines 15-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that the modified Yasuda device is capable producing a selected hole spacing between a pseudo-hole and a subsequent blind hole or microperforation which is less than the other hole spacings.

Regarding claims 24 and 25, the modified Yasuda device fails to explicitly claim a method wherein the laser beam bundle is shaped in such a way on the working side that its cross section decreases toward the decorative side.

The modified Yasuda device claims a laser controller (30-refer to fig.8 from claim 12) for controlling the output of the laser beam which can include the laser beam's shape (Yasuda-col.5, lines 1-3)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that the modified Yasuda device is capable of shaping a laser beam bundle in such a way on the working side (4- refer to fig 8 from claim 12) that its cross section decreases toward the decorative side (6-refer to fig 8

from claim 12).

Regarding claims 26 and 27, the modified Yasuda reference fails to explicitly claim a method wherein when working an inhomogeneous material that is a woven material comprising longitudinal threads and cross threads, the selected hole spacing is less than the thread diameter.

The modified Yasuda device is capable of having its laser beam move in such a way as to form a variety of different types of hole spacing on multilayer, laminate and inhomogeneous materials (Yasuda-col.2, line 65-67; col.3- lines 44-50 and lines 61-63; col.4, lines 3-8 and lines 15-20).

Therefore, it would have been an obvious to one of ordinary skill in the art at the time the invention was made to recognize that the modified Yasuda device is capable of having the selected hole spacing be less than the thread diameter of an inhomogeneous material that is a woven material consisting of the standard longitudinal threads and cross threads

Regarding claims 28 and 29, the modified Yasuda device fails to claim a method wherein, the selected hole spacing is equal to half of the thread diameter so that each thread is weakened by two holes insofar as the hole is not generated over the thread diameter.

It would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to modify the modified Yasuda device to have the selected hole spacing be equal to half of the thread diameter since the applicant has not disclosed that having the selected hole spacing be equal to half of the

thread diameter solves any state problem or is for any particular purpose, and it appears that the modified Yasuda device would perform equally well with the selected hole spacing that is equal to half of the thread diameter.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MAYA CLARK whose telephone number is (571)270-5605. The examiner can normally be reached on monday through friday, 10 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TU HOANG can be reached on (571)272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MAYA CLARK/
Examiner, Art Unit 3742

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